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PTO/SB/05 (4/98)

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	KIHNJ40223
First Inventor or Application Identifier	Kihn
Title	Universal Asset Class Benchmarking System, Process and Product
Express Mail Label No.	EL 403826555US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: **Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231**

1. ☒ * Fee Transmittal Form *(e.g., PTO/SB/17)* *(Submit an original, and a duplicate for fee processing)*
2. ☒ Specification [*Total Pages* 42] *(preferred arrangement set forth below)*
   - Descriptive title of the Invention
   - Cross References to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to Microfiche Appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
3. ☒ Drawing(s) *(35 U.S.C. 113)* [*Total Sheets* 13]
4. Oath or Declaration [*Total Pages* 2]
   - a. ☒ Newly executed (original or copy)
   - b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d)) *(for continuation/divisional with Box 16 completed)*
     - i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33 (b).

**NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).*

5. ☐ Microfiche Computer Program *(Appendix)*
6. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   - a. ☐ Computer Readable Copy
   - b. ☐ Paper Copy (identical to computer copy)
   - c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & documents(s))
8. ☐ 37 C.F.R.§3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
9. ☐ English Translation Document *(if applicable)*
10. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
11. ☐ Preliminary Amendment
12. ☒ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
13. ☒ * Small Entity Statement(s) *(PTO/SB/09-12)* ☐ Statement filed in prior application, Status still proper and desired
14. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
15. ☐ Other: .....

16. **If a CONTINUING APPLICATION,** *check appropriate box, and supply the requisite information below and in a preliminary amendment:*

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: _____/_____

Prior application information: Examiner _____ *Group / Art Unit:* _____

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS

☒ *Customer Number or Bar Code Label* 021587 *or* ☐ *Correspondence address below*

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City		*State*		*Zip Code*	
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Name (Print/Type)	Gerald Altman	*Registration No. (Attorney/Agent)*	17,109
Signature	Gerald Altman	*Date*	10/26/99

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PTO/SB/09 (12-97)

STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR	Docket Number (Optional) KIHNJ40223

Applicant, Patentee, or Identifier: John Kihn

Application or Patent No.:

Filed or Issued:

Title: Universal Asset Class Benchmarking System, Process and Product

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

☒ the specification filed herewith with title as listed above.

☐ the application identified above.

☐ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

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Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

John Kihn		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
John Kihn		
Signature of inventor	Signature of inventor	Signature of inventor
October 24, 1999		
Date	Date	Date

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TITLE: Universal Asset Class Benchmarking System, Process and Product

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates to the assessment of financial assets and, more particularly, to a system, process and product involving the novel benchmarking of source financial assets, e.g. publicized mutual fund information, and the creation therefrom of benchmark financial assets, e.g. derived mutual fund securities.

The Prior Art:

Value Line and Morningstar are both examples of current well publicized and well accepted mutual fund directories that track thousands of mutual funds. Both use a similar format, presenting information with a myriad of details, numbers, and commentary. Each ranks any mutual fund on a scale of one to five. For convenience, the following discussion will make reference to the Morningstar system of from one to five stars, five stars being the highest rating and one star being the lowest. However, it is to be understood that the Morningstar mutual fund format presented herein is merely exemplary of the variety of present and possible formats of publicized financial information that are or may become useful in accordance with the present invention.

Most new money now being invested in mutual funds, say 80 or 90%, goes into mutual funds that are rated 4 or 5 stars. Generally, investments in any mutual fund are associated with a "lottery effect". Despite the idiosyncratic nature of investor motivation, active investment in a particular fund is a self-fulfilling

prophecy that the associated price will rise. To the extent that this does not occur (i.e. the value does not increase), the investment will be liquidated. Conversely, inactive investment in a particular fund tends not to be dependent on directionality of prices per se.

It has been found that much of the long run relative performance in the mutual fund industry is a function of relative expense. This phenomenon applies to both equity funds and bond funds. Thus, as a practical matter, no-load funds tend to outperform load funds over time. This phenomenon applies despite the fact that relatively costly and more effective research expenses may affect performance favorably. In summary, those funds with the lowest expenses and the best research tend to achieve best results over time. There is a direct relationship between lower expenses and better research on one hand, and, for example, more stars on the other.

BRIEF DESCRIPTION OF THE INVENTION

The primary object of the present invention is to intensify the inverse relationship between relative expense and relative performance by creating structured securities that take advantage of publicized information about mutual funds with the highest ratings, i.e. 4 or 5 stars, while minimizing original research costs and other expenses. In essence, the present invention replicates the performance of relatively high expense mutual funds by benchmarking their portfolios at relatively low expense. More specifically, the object of the present invention is to provide specific systems and processes for benchmarking targeted,

relatively expensive, source portfolios of relatively high performance, and for producing therefrom relatively inexpensive, benchmark portfolios and securities of comparative performance.

The essence of the present invention is to track active, as well as more passive, managers, yet to outperform them by systematically providing lower expenses. It is a generally passive approach to outperforming active management. It creates a system/process/product, which is an improvement over current "passive" and "active" approaches to investment management. It incorporates the obvious demands of the public to invest in "active" investment management in the hope of a lottery style win, even though conventional dispassionate analysis would suggest that this endeavor is futile.

Semantics of the Terms, "index" and "benchmark"

Often the terms index and benchmark are used somewhat interchangeably. With respect to finance and hereinafter, it is preferred to use the term benchmark over index because it refers more accurately to the process of benchmarking a portfolio. Strictly speaking, it would seem that a benchmark is commonly more of a reference to the use of a benchmark within the process of benchmarking, whereas an index is more commonly viewed as a statistical term. Webster's defines "benchmark" as "a standard or reference by which others can be measured or judged", and defines "index" as "a number derived from a series of observations and used as an indicator or measure". Statistics textbooks more specifically define an "index number" as "a single figure that shows how a whole set of related

variables has changed over time or differs from place to place".

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the present invention, reference is made to the following specification, which is to be taken in connection with the accompanying drawings, wherein:

Fig. 1 is a flow diagram of the universal asset class benchmarking system and process of the present invention;

Figs. 2a, 2b and 2c constitute a source portfolio illustration, abbreviated for simplicity, as shown in Microsoft Excel spreadsheets, demonstrating how a corresponding benchmark portfolio is equally weighted in accordance with the present invention;

Figs. 3a, 3b and 3c are a listing by Lipper Analytical Services, Inc., as of month-end August, 1999, of 138 portfolios, i.e. funds, wherein the Lipper investment objective description is "High Current Yield Funds";

Figs. 4a, 4b and 4c are a listing by Morningstar, Inc., of 125 portfolios, i.e. funds, wherein the Morningstar category is designated "High Yield Bond";

Fig. 5 is a listing which meets all of the criteria required pursuant to the present invention, i.e. 18 portfolios in total from the 138 Lipper source funds and the 125 Morningstar source funds;

Figs. 6a, 6b and 6c constitute a three fund/portfolio example of weighting the securities in the benchmark pursuant to the present invention; and

Fig. 7 is a benchmark portfolio corresponding to the three fund/portfolio example of Figs. 3a, 3b and 3c and Figs. 4a, 4b and 4c, pursuant to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

General Discussion

The present invention contemplates benchmarking real portfolios as opposed to benchmarking indices. The following distinctions and similarities are critical.

(1) Unmanaged indices do not reflect transactional or operating costs and expenses, whereas managed portfolios do. Therefore, it is theoretically possible to more accurately track real portfolios than theoretical ones.

(2) It is not always possible to invest in all the securities in some indices (e.g., during the "Asian financial crisis" of 1998, it was not feasible to invest in most, if not all, of the securities contained in the MSCI Malaysia Index). Therefore, not only is it impossible to exactly mimic the financial performance of theoretical indices (i.e., due to operating and transactional costs), but in many cases it is impossible to mimic the security makeup of the theoretical index itself.

(3) Prospectus limitations may affect the ability of a

portfolio manager to track a theoretical index (e.g., limitations on the use of derivatives). For example, one or more Securities and Exchange Commission rules (as of 1999) forbid holding in aggregate of 25% of one security and/or industry sector. Yet, Royal Dutch Petroleum Company constituted in excess of 25% of the MSCI Netherlands Index.

(4) Just as with "index funds", the present invention creates an optimized representation of a basket of securities, which comprise an index (e.g., a portfolio sampling approach).

(5) They both functionally focus on tracking the financial performance of baskets of financial securities. However, instead of "active management" involving an emphasis on investment judgment, the present approach is fundamentally a form of "passive management" based on computation. This is not to say that certain "active" strategies might not be included to enhance the performance of the benchmark portfolio.

The Flowchart of Fig. 1 –
The Universal Asset Class Benchmark Process

The Portfolio Data – See block 10 in Fig. 1.

The most critical element of the present invention is the Portfolio Data, shown at 10, which requires at least two data level fields (portfolio and date) and at least two security level fields (CUSIPs and par amounts). (CUSIPs are unique identifiers of specific securities.)

This data is generated from one or more of the following four sources:

(1) Securities and Exchange Commission ("SEC") filings (these are referred to as "EDGAR filings") or the equivalent filings in other countries (i.e., in the case of those funds not registered in the United States). Generally, in the United States, all publicly traded funds are required to file at least annual, if not quarterly, statements.

(2) Actual annual, semi-annual and/or quarterly statements of the portfolios being tracked. Publicly traded funds issue annual, semi-annual and/or quarterly statements that provide a dated detailed list of securities comprising each portfolio.

(3) Data that comes directly from portfolio managers. Many mutual funds complexes, insurance companies, banks, etc. give detailed lists of the contents of their portfolios to various data providers.

(4) There are several data providers that compile security level data from both publicly and privately held portfolios. Essentially, these data providers use various combinations of the above three sources to compile these lists. This is clearly the easiest single source of the data required to create portfolio-based benchmarks.

The Asset Class Data – See block 12 in Fig. 1.

Depending on the benchmark being constructed, certain fields are matched with portfolio data. For example, certain equity portfolio data require a description of the security, sector code (possibly based on the Standard Industrial Classification (SIC) code), etc. A high yield corporate bond portfolio might additionally require coupon, maturity, call schedule, etc. This general set of data is designed to completely encompass the portfolio data and is referred to as the Asset Class Data. Depending on the asset class(es) from which the securites are drawn, there are typically several firms that provide this type of data to those firms that manage portfolios being benchmarked. This information is provided by several brokerage firms (e.g., Merrill Lynch and Salomon/Smith Barney), as well as by several firms unrelated to the brokerage and financial management industry (e.g., J.J. Kenny, which is owned by Standard and Poors, or EJVIBridge).

The Portfolio Tracking Data – See block 14 in Fig. 1

Related to the portfolio data is the portfolio tracking data. These values are used to aid in tracking those portfolios used to construct the benchmarks and to determine expenses charged to shareholders. This data is currently available from the following two primary sources:

(1) Lipper — This company provides portfolio level data (e.g., Net Asset Values ("NAVs"), returns, distribution yields, management fees, total expenses, defined asset groupings, etc.) for all publicly traded open-end funds,

closed-end funds, annuity/insurance products etc. Of particular importance are the NAVs and financial performance data.

(2) Morningstar — This company provides portfolio level data (e.g., Morningstar 3 year, 5 year, and 10 year ratings, management fees, total expenses, as well as defined asset groupings which closely mimic those of Lipper, etc.)

In addition, there are various other companies that provide similar sets of data, but the two listed above are almost prerequisites for this type of approach. For example, there may be several benchmarks based on certain 4 and 5 star Morningstar rated funds in one particular Lipper or Morningstar asset grouping. In addition, the various fund expenses (management expenses, distribution charges, etc.) need to be tracked in order to set the fees charged by the benchmark portfolios.

The Database – See block 16 in Fig. 1

Database 16 represents the sum of (1) the Asset Class Data, (2) the Portfolio Data, and (3) the Portfolio Tracking Data. This data ordinarily is stored in a relational database (e.g., an Oracle database) with the data organized by CUSIP and portfolio or benchmark. As with many aspects of practical finance, this is essentially a data management exercise.

Benchmark Formation – See block 18 in Fig. 1

Benchmark formation is based on business logic. For example, actively managed equity funds tend to have the highest expenses. The present invention specifically

contemplates Lipper and/or Morningstar based equity asset classes or subsets of those asset classes (i.e., only highly rated funds/portfolios). However, it is to be understood that the concept has general applicability.

Rebalancing – See block 20 in Fig. 1

As the underlying portfolios change, there will be rebalancing of the benchmarks and consequently rebalancing of the actual portfolios to reflect these changes. Benchmark and portfolio rebalancing pursuant to the present invention is inherently unique. In the "normal" passive indexing approach, the index is taken as a given (i.e., the index is typically exogenous to the system). In some cases, the index is determined by the manager. In the present case, it is not only an outcome of endogenous forces, but it is determined by exogenous forces (e.g., different portfolio managers, rating services, data availability, etc.) as well. This approach takes one or more real snapshots of one or more real portfolios then establishes a benchmark accordingly.

The Spreadsheets of Figs. 2a, 2b and 2c – how to equally weight a benchmark portfolio.

Figs. 2a, 2b and 2c constitute a simplified three portfolio example of how the securities in the benchmark are weighted. Fig. 2a shows the values used in this example, while Figs. 2b and 2c illustrate the values and formulas on which Fig. 2a is based (i.e., values only). Once the list of portfolios contained in the benchmark is complete, the next step is to calculate weights for each of the securities in the benchmark. The benchmark will reflect an equal weighting given to each portfolio that it

comprises. The following steps are preferred in equally weighting the portfolios comprising the benchmark.

(Step I) In this example, for each of the securities in each of the 3 portfolios/funds, combine the CUSIP and par amount data with pricing data (this is done in order to calculate market value weightings). In addition to price, other fields should be added (e.g., in this case coupon, maturity, any call schedule and/or sinking fund schedule, description, industry sector, etc.). In short, combine the portfolio data with the asset class data for that specific benchmark. Also, for each portfolio/fund consolidate any securities with duplicate identifiers (i.e., CUSIPs) by summing up the par values for that identifier.

(Step II) For each portfolio/fund in the benchmark calculate the estimated total market value for that portfolio:

$$PMV = \sum_{i=1}^{N} Par_i \ * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value.

(Step III) Sum up all the PMVs

$$TBMV = \sum_{j=1}^{J} PMV^J$$

, where J = the number of portfolios/funds in the benchmark (in this case 3), and TBMV = total benchmark market value.

(Step IV) Create a scaling factor in order to equally weight the portfolios/funds by taking the reciprocal of the weight of each portfolio/fund:

$$SF^{j} = 1/(PMV^{j} / TBMV)$$

, where

SF^{J}

= the scaling factor for the jth portfolio/fund.

(Step V) Adjust the scaling factor so that the sum of the scaling factors equal unity:

$$ASF^{J} = SF^{J} / \sum_{J=1}^{J} SF^{J}$$

, where

ASF^{J}

= the adjusted scaling factor for the jth portfolio/fund, and

$$\sum_{J=1}^{J} ASF^{J} = 1$$

.

(Step VI) Adjust the securities in the benchmark so that each portfolio/fund receives an equal weight (as opposed to each security) by multiplying each security in each portfolio/fund by its appropriate adjusted scaling factor:

$$AMV_{i}^{J} = MV_{i}^{j} * ASF^{J}$$

, where

AMV_{i}^{J}

= the adjusted market value of security i in portfolio/fund j.

(Step VII) Based on step 6, create an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_{i}^{j} = AMV_{i}^{J} / (\sum_{J}^{J} \sum_{i=1}^{N} AMV_{i}^{J} * J)$$

, where

x_i^j
= the weight of the ith security in the jth portfolio/fund, and
$\sum_{j}^{J}\sum_{i=1}^{N} x_i^J = 1/J$
(by construction).

Over all the securities, the weights should add up to one. These weights form the foundation for constructing a real portfolio.

Therefore, for portfolio j = 1 (i.e., ABC12), N = 4, for portfolio j = 2 (i.e., DEF34), N = 3, and for portfolio j = 3 (i.e., GHI56), N = 3. Therefore, in this example J = 3 and 1/J = 33 1/3%.

Although there are many possible ways to equally weight a series of portfolios, the above sequence of steps serves as a reasonable methodology to achieve the goal of adjusting normal market weights to equalize the weight of each portfolio/fund across two or more portfolios/funds.

Balancing and Periodic Rebalancing of the Benchmark Portfolio

The initial creation of a benchmark portfolio is the net result of applying the CUSIPs and their related adjusted weights. Of course, in the above example an exact match to the benchmark may not be possible. In addition, it may not be economically desirable to exactly match the benchmark. Rebalancing is scheduled to occur periodically, for example, on a monthly basis. Rebalancing consists typically of periodically (due to portfolio/fund data constraints) repeating the benchmark creation process and adjusting the portfolio to reflect any change in the weights from the period before. Again, as with the creation of the benchmark, economic considerations (e.g.,

transaction costs) may limit the extent to which the rebalancing reflects an exact matching of the benchmark.

Specific Example I - the reference securities of Figs. 3a, 3b and 3c, the reference securities of Figs. 4a, 4b and 4c, and the derived securities of Fig. 5

Portfolio Inclusion Criteria

The following example is a corporate high yield bond portfolio that is composed of only those open end mutual funds that meet the following criteria:

(1) The fund/portfolio must be included in the relevant Lipper and Morningstar universe (i.e., those funds/portfolios common to both relevant asset class universes). For Lipper, those funds defined as having the investment objective "high current yield". For Morningstar, those taxable bond funds defined as "high-yield". Both require the fund have "at least 65% of assets in bonds rated below BBB" (as defined by Standard & Poor's) or Baa (as defined by Moody's). By definition, Standard & Poor's states that "debt rated 'BBB' are regarded as having adequate capacity to pay interest and repay principal. Whereas they normally exhibit adequate protection parameters (i.e., creditor's rights), adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity to pay interest and repay principal for debt in this category than in higher rated categories. Debt rated 'BB', 'B', 'CCC' and 'CC' are regarded, on balance, as

predominantly speculative with respect to capacity to pay interest and repay principal in accordance with the terms of the obligation. The rating 'C' is reserved for income bonds on which no interest is being paid. Debt rated 'D' is in default." Given there are two principal ratings agencies in the United States (a distant third is Fitch/IBCA), the alternative rating cutoff should be mentioned. The equivalent investment grade cutoff rating for Moody's investor service is Baa (i.e., functionally equivalent to Standard & Poor's BBB). By definition, Moody's states that "bonds which are rated Baa are considered medium grade obligations; i.e., they are neither highly protected nor poorly secured. Interest payments and principal security appear adequate for the present, but certain protective elements may be lacking or may be characteristically unreliable over any great length of time. Such bonds lack outstanding investment characteristics and in fact have speculative characteristics as well. Bonds that are rated Ba are judged to have speculative elements; their future cannot be considered as well assured. Often the protection of interest and principal payments may be very moderate and thereby not well safeguarded during both good and bad times over the future. Uncertainty of position characterizes bonds in this class. Bonds, which are rated B, generally lack characteristics of the desirable investment. Bonds

which are rated Caa are of poor standing. Such issues may be in default or there may be present elements of danger with respect to principal or interest. Bonds that are rated Ca represent obligations which are speculative in a high degree. Such issues are often in default or have other marked shortcomings. Bonds which are rated C are the lowest class of bonds, and issues so rated can be regarded as having extremely poor prospects of ever attaining any real "investment standing". Therefore, portfolios of this kind are predominantly composed of speculative grades of debt (i.e., BB and below by Standard & Poor's, and Ba and below by Moody's).

(2) The fund must have an overall Morningstar rating of five stars.

(3) Portfolio data (i.e., CUSIPs and par amounts) must be available for each portfolio meeting the above two criteria.

(4) The fund/portfolio must have some unique identifier (e.g., a five character Nasdaq® symbol – National Association of Securities Dealers Automated Quotation System). The identifier is helpful in confirming the identity of the fund/portfolio in order to construct and match up the various sets of data.

It is to be understood that this example is not meant to encompass all potential possibilities, but it should represent a relatively extreme case. For example, high yield corporate portfolios have many securities that are, by definition, illiquid and/or

distressed. Therefore, this example is meant to be a slight deviation from a strictly indexed portfolio where little or no deviation from the benchmark would be expected (e.g., certain equity asset classes). Given that the portfolio data the benchmark is based on is somewhat aged, it might be advisable to set certain rules with respect to filtering out very distressed and/or illiquid securities, or for that matter any securities which might represent a return drag on a derived benchmark. Clearly, one logical extension of this is to create portfolios that are an "enhanced" version of the original(s). For example, it is possible to systematically "tilt" toward one or more characteristics when those are viewed to be undervalued and to "tilt" away from one or more characteristics when those are viewed to be overvalued.

Figs. 3a, 3b and 3c, as of month-end August, 1999, constitute a list of 138 funds/portfolios, designated with an objective of "high current yield" by Lipper Analytical Services, Inc. The Lipper investment objective description is "High Current Yield Funds".

Figs. 4a, 4b and 4c, as of month-end July, 1999, constitute a list of 125 funds/portfolios, designated with an objective of "high yield bond" by Morningstar, Inc. The Morningstar category is "High Yield Bond".

Fig. 5 is a list, which meets all the criteria required (i.e. 18 portfolios/funds in total of the original 125 to 138 portfolios/funds). The Morningstar category is "High Yield Bond". The Lipper investment objective description is "High Yield Funds". It is from this list that the derived benchmark is constructed.

A Note on Morningstar Ratings

The following is a sequence of excerpts published by Morningstar in regard to: how Morningstar calculates its star ratings Although investors are sometimes confused by the uses and implications of the star rating, the calculation itself is relatively straightforward. For mutual funds that have at least 36 months of performance data, Morningstar assigns a rating of 1 to 5 stars. The rating is completely objective. A fund's rating is based on a mathematical calculation that examines relative historical risk and return. We calculate ratings for the trailing three, five and ten year periods.

Assembling Benchmark Securities and Ratings

To assign ratings, we subtract each portfolio/fund Morningstar Risk score from its Morningstar Return score. The portfolio/fund in each rating group then are ranked by this raw number, from highest to lowest. The top 10% of securities receive 5 stars, the next 22.5% receive 4 stars, the middle 35% receive 3 stars, the next 22.5% receive 2 stars, and the bottom 10% receive 1 star. (There is no 'zero' star rating – funds with less than 36 months of return data are simply not rated.)"

Weighting the Portfolio/Fund in the Benchmark

Once the portfolio/fund list comprising the benchmark is complete, the next step is to calculate weights for each portfolio/fund in the benchmark. The benchmark will reflect an equal weighting given to each portfolio/fund it comprises. The following steps are preferred for equally weighting each portfolio/fund in the benchmark. These steps are analogous to the corresponding steps associated with Figs. 2a, 2b and 2c, but are repeated now to ensure clarity.

(Step I) In this example, for each of the securities in each of the 18 portfolios/funds, combine the CUSIP and par amount data with pricing data (this is done in order to calculate market value weightings). In addition to price, other fields should be added (e.g., in this case coupon, maturity, any call schedule and/or sinking fund schedule, description, industry sector, etc.). In short, combine the portfolio data with the asset class data for that specific benchmark. Also, for each portfolio/fund consolidate any securities with duplicate identifiers (i.e., CUSIPs) by summing up the par values for that identifier.

(Step II) For each portfolio/fund in the benchmark calculate the estimated total market value for that portfolio:

$$PMV = \sum_{i=1}^{N} Par_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value.

(Step III) Sum up all the PMVs (i.e.,

$$TBMV = \sum_{J=1}^{J} PMV^J$$

, where J = the number of portfolios/funds in the benchmark (in this case 18), and TBMV = total benchmark market value.

(Step IV) Create a scaling factor in order to equally weight the portfolios/funds by taking the reciprocal of the weight of each portfolio/fund:

$$SF^J = 1/(PMV^J / TBMV)$$

, where

SF^J
= the scaling factor for the jth portfolio/fund.

(Step V) Adjust the scaling factor so that the sum of the scaling factors equal unity:

$$ASF^J = SF^J / \sum_{J=1}^{J} SF^J$$

, where

ASF^j
= the adjusted scaling factor for the jth portfolio/fund, and

$$\sum_{J=1}^{J} ASF^J = 1$$

(Step VI) Adjust the securities in the benchmark so that each portfolio/fund receives an equal weight (as opposed to each security) by multiplying each security in each portfolio/fund by its appropriate adjusted scaling factor:

$$AMV_i^j = MV_i^J * ASF^J$$

, where

AMV_i^J
= the adjusted market value of security i in portfolio/fund j.

(Step VII) Based on step 6, create an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_i^J = AMV_i^J / (\sum_{I=1}^{J} \sum^{N} AMV_i^J * J)$$

, where

x_i^J
= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{j=1}^{J}\sum_{i=1}^{N} x_i^j = 1/J$$

(by construction).

Specific Example II – the reference securities of Figs. 6a, 6b and 6c and the derived securities of Fig. 7

With respect to all of the securities, the weights should add up to one. These weights form the foundation for constructing a real portfolio. The following is a three portfolio/fund example in reference to Figs. 6a, 6b and 6c.

	Market Value (million $)	Scaling factor	Adjusted Scaling factor
Fund ABC12	$47.731	1.846	14.24%
Fund DEF34	$29.535	2.983	23.01%
Fund GHI56	$10.829	8.135	62.75%
Total	$88.096	12.963	100.00%

For portfolio j = 1 (i.e., ABC12), N = 46, for portfolio j = 2 (i.e., DEF34), N = 59, and for portfolio j = 3 (i.e., GHI56), N = 24. Therefore, in this example, J = 3 and 1/J = 33 1/3%.

There are many possible ways to equally weight a portfolio/fund series, but the above example is a preferred methodology to achieve the goal of adjusting normal

market weights to equalize the weight of each portfolio/fund across two or more portfolios/funds.

Benchmarking the Benchmark's Expenses

There are many different expenses and fees charged by portfolio managers (e.g., 12b-1 expenses, non-12b-1 expenses, contingent deferred sales charges, redemption charges, front-end loads, administrative expenses, administrative reimbursement expenses, advisory fees, audit/legal expenses, audit fees, legal fees, custodian expenses, director fees, fund accounting expenses, management fees, non-management fees, etc.). Therefore, there obviously are more than one way to categorize and/or account for charges to the portfolio client.

To simplify matters, and for practical reasons, it is likely that the actual expense or charge to any shareholder will be some direct fraction of the average total expenses charged by the portfolios/funds making up the benchmark. In this case the average total expense (i.e., as of the time the last financial statement for each fund was examined by Lipper and/or Morningstar) was approximately 99 basis points ("BPTs", 100 BPTs = 1%) of the assets under management. Therefore, on average, the 18 five star funds charge about $1 annually for every $100 under management.

A preferred way to charge shareholders for benchmarked securities embodying the present invention is to calculate the charging of expenses as a function of the what the underlying portfolios/funds charge. Thus, a proper charge would be say ½ of the total expenses that the average underlying portfolio/fund charges. Of course, expenses charged are a moving target and there is a need for some institutionalized updating

process, which would reflect any changes in the underlying portfolio/fund charges to their shareholders.

Thus, as long as the expenses charged are less than those charged the shareholders of portfolios/funds from which the benchmark is derived, and assuming the benchmark portfolio does no worse than the portfolios/funds from which the benchmark is derived, the derived benchmark will consistently beat the reference benchmark. This is due to the fact that financial performance in actual portfolios/funds is determined after most expenses are taken account of. As long as the benchmark portfolio keeps its financial performance up with the portfolios/funds from which it is derived, or as long as any under performance is less than the expense advantage, the benchmark portfolio should outperform the equally weighted group on which it is based.

Fig. 7 illustrates the benchmarked portfolio/fund derived from the reference portfolios/funds of Figs. 3a, 3b and 3c and Figs. 4a, 4b and 4c.

Balancing and Periodic Rebalancing of the Benchmark Portfolio

The initial creation of a benchmark portfolio is the net result of applying the CUSIPs and their related adjusted weights. Of course, in the above example an exact match to the benchmark may not be possible. In addition, it may not be economically desirable to exactly match the benchmark. It is likely that rebalancing will occur on a monthly basis. Rebalancing will consist of periodically (due to portfolio/fund data constraints) repeating the benchmark creation process and adjusting the portfolio to reflect any change in the weights from the period before. Again, as with the creation of

the benchmark, economic considerations (e.g., transaction costs) may limit the extent to which the rebalancing reflects an exact matching of the benchmark.

OPERATION

The benchmarking operation of the present invention involves the following important features:

(1) The benchmarking itself is unique. This benchmarking process focuses on a portfolio or set of portfolios not an index (e.g., the Standard & Poors' 500) or set of indices. In addition, the benchmark itself is intended to be tracked in a manner similar to an "index fund" tracking some index. However, in this case the benchmark is unique.

(2) The benchmark tracking is unique. Benchmarks are constructed to track the price and yield performance of one or more actual portfolios, not one or more indices (i.e., which can be theoretical in nature). For example, most indices do not include the cost of transacting, whereas the price and yield performance of actual portfolios reflect the actual expenses of transacting in the financial market(s).

(3) The present invention contemplates the issuance of shares. While there have been shares issued on certain exchanges (e.g., WEBS — World Equity Benchmark Shares on the American Stock Exchange, which attempt to track certain Morgan Stanley Capital International, Inc. Indices ("MSCI" Indices)) that attempt to track the price and yield performance of various indices, none to my knowledge have attempted to track one or more actual portfolios in the manner of the present invention.

(4) The management expense/total expense part is unique. No open- or closed-end mutual funds, unit trusts, WEBS, etc. set their expenses off those portfolios, which

they are benchmarked to. For example, pursuant to the present invention, expenses can be set to be some fraction of those of the benchmark. This clearly lends itself to a direct competitive advantage. One of the reasons often given to pay higher fees (although empirically wanting) is that one is buying the services of higher quality active managers. This type of expense discounting and portfolio benchmarking creates a relatively strong rational for purchasing this type of financial product over an individual portfolio. Therefore, the present financial system and process create an alternative form of indexed/benchmarked product, which more directly will compete with those funds deemed to be actively managed.

WHAT IS CLAIMED IS:

1. An asset class benchmarking system comprising:

   (a) means for selecting portfolio data from publicized source information;

   (b) means for selecting asset class data from publicized source information;

   (c) means for selecting portfolio tracking data from publicized source information; and

   (d) means for summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data.

2. The asset class benchmarking system of claim 1, wherein said portfolio data comprises data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field.

3. The asset class benchmarking system of claim 1, wherein said asset class data are matched with said portfolio data.

4. The asset class benchmarking system of claim 1, wherein said portfolio tracking data including management expenses and distribution charges.

5. An asset class benchmarking system comprising:

   (a) means for selecting portfolio data from publicized source information;

(b) means for selecting asset class data from publicized source information;

(c) means for selecting portfolio tracking data from publicized source information; and

(d) means for summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data;

(e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field;

(f) said asset class data being matched with said portfolio data;

(g) said portfolio tracking data including management expenses and distribution charges.

6. An asset class benchmarking system comprising: (a) means for selecting portfolio data from publicized source information; (b) means for selecting asset class data from publicized source information; (c) means for selecting portfolio tracking data from publicized source information; (d) means for summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data; (e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field; (f) said asset class data being matched with said portfolio

data; (g) said portfolio tracking data including management expenses and distribution charges; and (h) means for weighting said benchmark data.

7. The asset class benchmarking system of claim 6, wherein said means for weighting said benchmark data comprises:

(a) for each of the securities in said portfolio data, means for combining the CUSIP and par amount data with pricing data;

(b) for each of the securities in said benchmark data, means for calculating the estimated total market value for said securities pursuant to the following:

$$PMV = \sum_{i=1}^{N} Par_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(c) means for summing up all the PMVs pursuant to the following,

$$TBMV = \sum_{J=1}^{J} PMV^J$$

, where J = the number of portfolios/funds in the benchmark (in this case 18), and TBMV = total benchmark market value;

(d) means for creating a scaling factor in order to equally weight the equities by taking the reciprocal of the weight of each equity pursuant to the following,

$$SF^J = 1/(PMV^J / TBMV)$$

, where

SF^J = the scaling factor for the jth portfolio/fund;

(e) means for adjusting the scaling factor so that the sum of the scaling factors equal unity pursuant to the following,

$$ASF^j = SF^J / \sum_{J=1}^{J} SF^J$$

, where

ASF^J
= the adjusted scaling factor for the jth portfolio/fund as follows,

$$\sum_{J=1}^{J} ASF^J = 1$$

(f) means for adjusting the securities in the benchmark so that preselected groups of said securities receive equal weights by multiplying each security in each of said preselected groups by its appropriate adjusted scaling factor as follows,

$$AMV_i^J = MV_i^j * ASF^J$$

, where

AMV_i^J
= the adjusted market value of security i in portfolio/fund j, and

(g) based on said means of paragraph (f) directly hereinabove, means for creating an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_i^J = AMV_i^j / (\sum_{i=1}^{J} \sum^{N} AMV_i^J * J)$$

, where

x_i^J
= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{i=1}^{J} \sum^{N} x_i^J = 1/J$$

(by construction).

8. An asset class benchmarking process comprising:

   (a) selecting portfolio data from publicized source information;

   (b) selecting asset class data from publicized source information;

   (c) selecting portfolio tracking data from publicized source information; and

   (d) summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data.

9. The asset class benchmarking process of claim 8, wherein said portfolio data comprises data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field.

10. The asset class benchmarking process of claim 8, wherein said asset class data are matched with said portfolio data.

11. The asset class benchmarking process of claim 8, wherein said portfolio tracking data including management expenses and distribution charges.

12. An asset class benchmarking process comprising:

   (a) selecting portfolio data from publicized source information;

   (b) selecting asset class data from publicized source information;

   (c) selecting portfolio tracking data from publicized source information; and

(d) summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data;

(e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field;

(f) said asset class data being matched with said portfolio data;

(g) said portfolio tracking data including management expenses and distribution charges.

13. An asset class benchmarking process comprising: (a) selecting portfolio data from publicized source information; (b) selecting asset class data from publicized source information; (c) selecting portfolio tracking data from publicized source information; (d) summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data; (e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, (f) said security level field including a CUSIP field and a par amount field; (g) said asset class data being matched with said portfolio data; (h) said portfolio tracking data including management expenses and distribution charges; and (i) weighting said benchmark data.

14. The asset class benchmarking process of claim 13, wherein said weighting of said benchmark data comprises:

(Step I) for each of the securities in said portfolio data, combining the CUSIP and par amount data with pricing data;

(Step II) for each of the securities in said benchmark data, calculating the estimated total market value for said securities pursuant to the following:

$$PMV = \sum_{i=1}^{N} Par_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(Step III) summing up all the PMVs pursuant to the following,

$$TBMV = \sum_{J=1}^{J} PMV^J$$

, where J = the number of portfolios/funds in the benchmark, and TBMV = total benchmark market value;

(Step IV) creating a scaling factor in order to equally weight the equities by taking the reciprocal of the weight of each equity pursuant to the following,

$$SF^J = 1/(PMV^J / TBMV)$$

, where

SF^J

= the scaling factor for the jth portfolio/fund;

(Step V) adjusting the scaling factor so that the sum of the scaling factors equal unity pursuant to the following,

$$ASF^J = SF^J / \sum_{J=1}^{J} SF^J$$

, where

ASF^J
= the adjusted scaling factor for the jth portfolio/fund as follows,

$$\sum_{J=1}^{J} ASF^J = 1$$

(Step VI) adjusting the securities in the benchmark so that preselected groups of said securities receive equal weights by multiplying each security in each of said preselected groups by its appropriate adjusted scaling factor as follows,

$$AMV_i^J = MV_i^J * ASF^J$$

, where

AMV_i^j
= the adjusted market value of security i in portfolio/fund j, and

(Step VII) based on said **Step VI** directly hereinabove, creating an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_i^J = AMV_i^J / (\sum_{i=1}^{J} \sum^{N} AMV_i^j * J)$$

, where

x_i^J
= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{i=1}^{J} \sum^{N} x_i^j = 1/J$$

(by construction).

15. An asset class benchmarked security produced by a process comprising: (a) selecting portfolio data from publicized source information; (b) selecting asset class data from publicized source information; (c) selecting portfolio tracking data from publicized source information; (d) summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data; (d) said portfolio data

comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, (e) said security level field including a CUSIP field and a par amount field; (f) said asset class data being matched with said portfolio data; (g) said portfolio tracking data including management expenses and distribution charges; and (h) weighting said benchmark data.

16. The asset class benchmarked security of claim 15, wherein said weighting of said benchmark data comprises:

(Step I) for each of the securities in said portfolio data, combining the CUSIP and par amount data with pricing data;

(Step II) for each of the securities in said benchmark data, calculating the

$$PMV = \sum_{i=1}^{N} Par_i * \Pr ice_i$$

estimated total market value for said securities pursuant to the following:

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(Step III) summing up all the PMVs pursuant to the following,

$$TBMV = \sum_{j=1}^{J} PMV^j$$

, where J = the number of portfolios/funds in the benchmark, and TBMV = total benchmark market value;

(Step IV) creating a scaling factor in order to equally weight the equities by taking the reciprocal of the weight of each equity pursuant to the following,

$SF^J = 1/(PMV^J / TBMV)$

, where

SF^j

= the scaling factor for the jth portfolio/fund;

(Step V) adjusting the scaling factor so that the sum of the scaling factors equal unity pursuant to the following,

$$ASF^J = SF^J / \sum_{j=1}^{J} SF^J$$

, where

ASF^J

= the adjusted scaling factor for the jth portfolio/fund as follows,

$$\sum_{j=1}^{J} ASF^J = 1$$

(Step VI) adjusting the securities in the benchmark so that preselected groups of said securities receive equal weights by multiplying each security in each of said preselected groups by its appropriate adjusted scaling factor as follows,

$$AMV_i^J = MV_i^J * ASF^J$$

, where

AMV_i^J

= the adjusted market value of security i in portfolio/fund j, and

(Step VII) based on said **Step VI** directly hereinabove, creating an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_i^J = AMV_i^J / (\sum_{j=1}^{J} \sum_{i=1}^{N} AMV_i^J * J)$$

, where

x_i^j
= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{j}^{J}\sum_{i=1}^{N} x_i^j = 1/J$$

(by construction).

17. An asset class benchmarking system comprising: (a) means for selecting portfolio data from first publicized source information; (b) means for selecting asset class data from second publicized source information; (c) means for selecting portfolio tracking data from third publicized source information; (d) means for summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data; (e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field; (f) said asset class data being matched with said portfolio data; (g) said portfolio tracking data including management expenses and distribution charges; (h) means for weighting said benchmark data, and (i) means for periodically rebalancing said benchmark data by repeating the application of means (a) through (h), (j) said portfolio data being derived from publicized filings at the Securities and Exchange Commission ("SEC") or the equivalent filings in countries other than the United States, or publicized actual periodic official reports involving said portfolio data, or publicized lists of the contents of said portfolio data by the entities involved therewith, (h) said asset class data being derived from descriptions of said portfolio data or sector codes related thereto, and (i) said portfolio tracking data being derived from publicized financial performance and expense data related to said portfolio data.

18. An asset class benchmarking process comprising: (a) selecting portfolio data from first publicized source information; (b) selecting asset class data from second publicized source information; (c) selecting portfolio tracking data from third publicized source information; (d) means for summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data; (e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field; (f) said asset class data being matched with said portfolio data; (g) said portfolio tracking data including management expenses and distribution charges; (h) weighting said benchmark data, and (i) periodically rebalancing said benchmark data by repeating the application of (a) through (h) above, (j) said portfolio data being derived from publicized filings at the Securities and Exchange Commission ("SEC") or the equivalent filings in countries other than the United States, or publicized actual periodic official reports involving said portfolio data, or publicized lists of the contents of said portfolio data by the entities involved therewith, (h) said asset class data being derived from descriptions of said portfolio data or sector codes related thereto, and (i) said portfolio tracking data being derived from publicized financial performance and expense data related to said portfolio data.

19. An asset class benchmarked security product produced by a process comprising: (a) selecting portfolio data from first publicized source information; (b) selecting asset class data from second publicized source information; (c) selecting portfolio tracking data from third publicized source information; (d) means for summing

said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data; (e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field; (f) said asset class data being matched with said portfolio data; (g) said portfolio tracking data including management expenses and distribution charges; (h) weighting said benchmark data, and (i) periodically rebalancing said benchmark data by repeating the application of (a) through (h) above, (j) said portfolio data being derived from publicized filings at the Securities and Exchange Commission ("SEC") or the equivalent filings in countries other than the United States, or publicized actual periodic official reports involving said portfolio data, or publicized lists of the contents of said portfolio data by the entities involved therewith, (h) said asset class data being derived from descriptions of said portfolio data or sector codes related thereto, and (i) said portfolio tracking data being derived from publicized financial performance and expense data related to said portfolio data.

20. An asset class benchmarked security product produced by a process comprising: (a) selecting portfolio data from first publicized source information; (b) selecting asset class data from second publicized source information; (c) selecting portfolio tracking data from third publicized source information; (d) means for summing said portfolio data, said asset class data and said portfolio tracking data to produce benchmark data; (e) said portfolio data comprising data level fields and security level fields, said data level fields including a portfolio field and a date field, said security level field including a CUSIP field and a par amount field; (f) said asset class data being

matched with said portfolio data; (g) said portfolio tracking data including management expenses and distribution charges; (h) weighting said benchmark data, and (i) periodically rebalancing said benchmark data by repeating the application of (a) through (h) above, (j) said portfolio data being derived from publicized filings at the Securities and Exchange Commission ("SEC") or the equivalent filings in countries other than the United States, or publicized actual periodic official reports involving said portfolio data, or publicized lists of the contents of said portfolio data by the entities involved therewith, (h) said asset class data being derived from descriptions of said portfolio data or sector codes related thereto, and (i) said portfolio tracking data being derived from publicized financial performance and expense data related to said portfolio data, and (k) weighting of benchmark data by the following steps:

(Step I) for each of the securities in said portfolio data, combining the CUSIP and par amount data with pricing data;

(Step II) for each of the securities in said benchmark data, calculating the

$$PMV = \sum_{i=1}^{N} Par_i * \Pr ice_i$$

estimated total market value for said securities pursuant to the following:

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(Step III) summing up all the PMVs pursuant to the following,

$$TBMV = \sum_{j=1}^{J} PMV^{j}$$

, where J = the number of portfolios/funds in the benchmark, and TBMV = total benchmark market value;

(Step IV) creating a scaling factor in order to equally weight the equities by taking the reciprocal of the weight of each equity pursuant to the following,

$$SF^{j} = 1/(PMV^{j} / TBMV)$$

, where

SF^{j}

= the scaling factor for the jth portfolio/fund;

(Step V) adjusting the scaling factor so that the sum of the scaling factors equal unity pursuant to the following,

$$ASF^{j} = SF^{j} / \sum_{J=1}^{J} SF^{J}$$

, where

ASF^{J}

= the adjusted scaling factor for the jth portfolio/fund as follows,

$$\sum_{J=1}^{J} ASF^{J} = 1$$

(Step VI) adjusting the securities in the benchmark so that preselected groups of said securities receive equal weights by multiplying each security in each of said preselected groups by its appropriate adjusted scaling factor as follows,

$$AMV_{i}^{j} = MV_{i}^{j} * ASF^{j}$$

, where

AMV_i^J
= the adjusted market value of security i in portfolio/fund j, and

(Step VII) based on said **Step VI** directly hereinabove, creating an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_i^j = AMV_i^J / (\sum_{i=1}^{J} \sum^{N} AMV_i^J * J)$$

, where

x_i^J
= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{i=1}^{J} \sum^{N} x_i^j = 1/J$$

(by construction).

ABSTRACT

An asset class benchmarking system, process and product involves selecting portfolio data from publicized source information, selecting asset class data from publicized source information, selecting portfolio tracking data from publicized source information; and summing the portfolio data, the asset class data and the portfolio tracking data to produce benchmark data. The present system, process and product intensify the inverse relationship between relative expense and relative performance by creating structured securities that take advantage of publicized information about mutual funds with the highest ratings, i.e. 4 or 5 stars, while minimizing original research and other expense. In essence, the present invention replicates the performance of relatively high expense mutual funds by benchmarking their portfolios at relatively low expense.

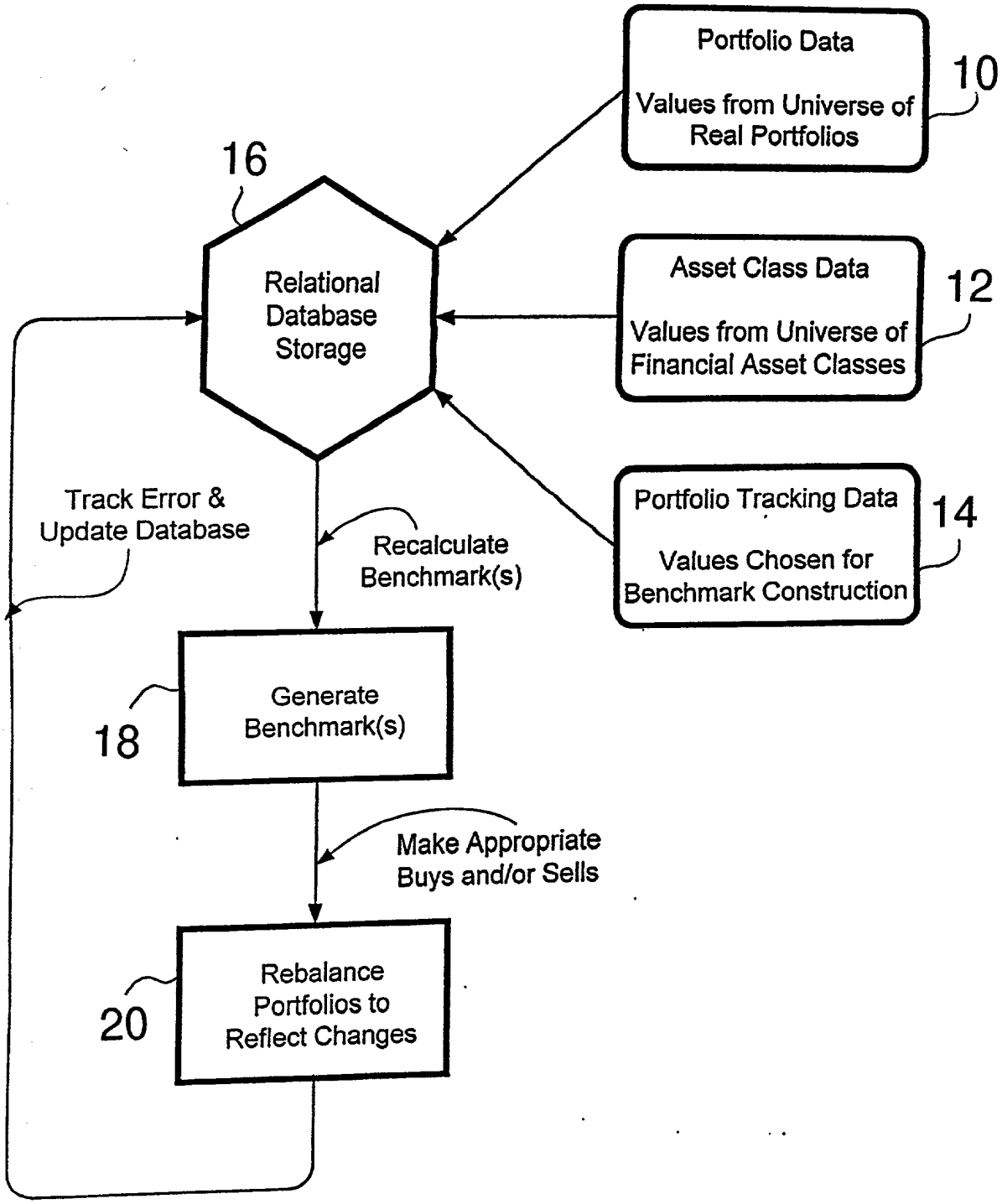
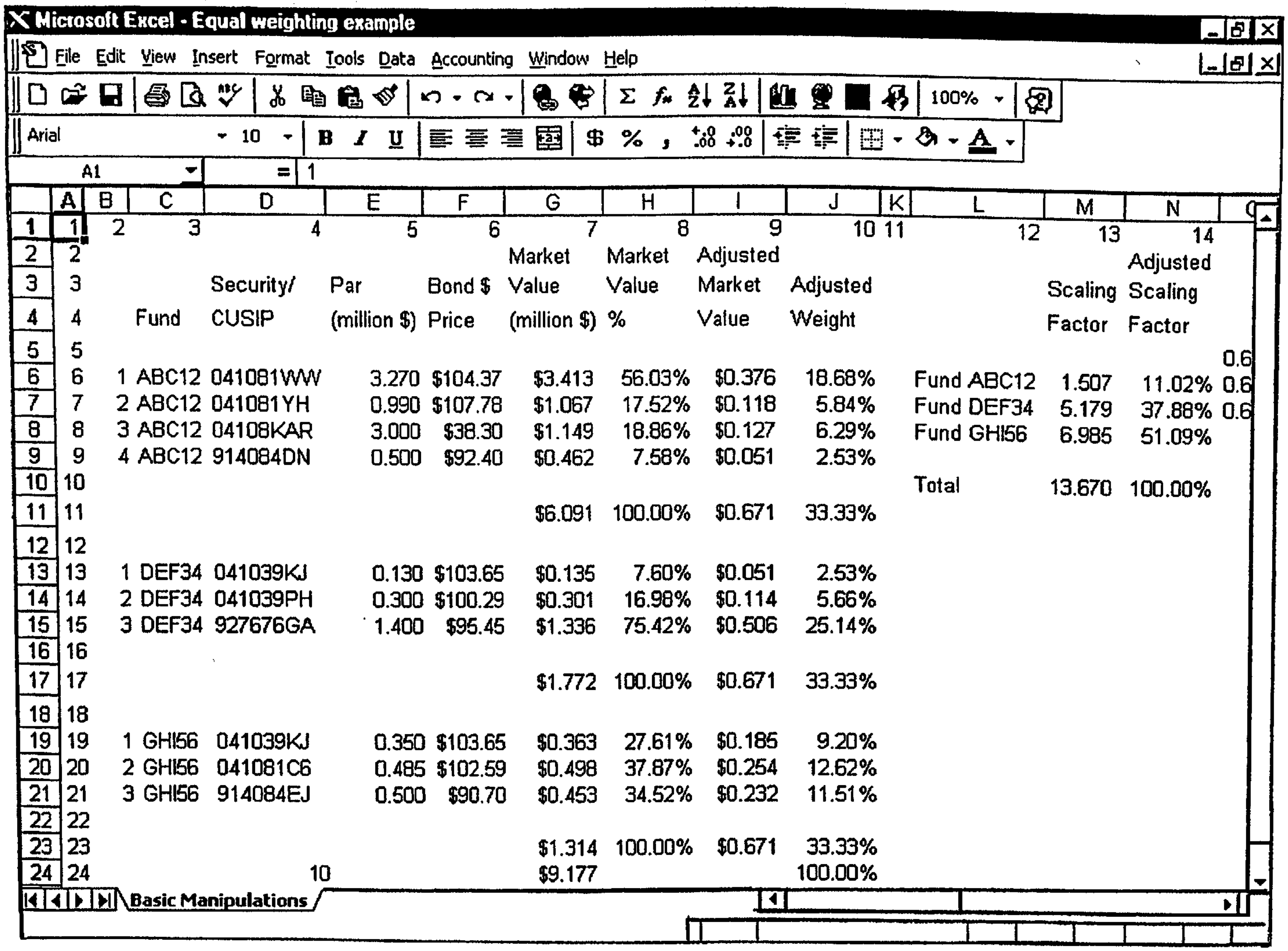

Portfolio Data
Values from Universe of Real Portfolios
10
16
Relational Database Storage
Asset Class Data
Values from Universe of Financial Asset Classes
12
Portfolio Tracking Data
Values Chosen for Benchmark Construction
14
Track Error & Update Database
Recalculate Benchmark(s)
18
Generate Benchmark(s)
Make Appropriate Buys and/or Sells
20
Rebalance Portfolios to Reflect Changes

Fig. 1



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
2	2						Market	Market	Adjusted					Adjusted	
3	3			Security/	Par	Bond $	Value	Value	Market	Adjusted			Scaling	Scaling	
4	4		Fund	CUSIP	(million $)	Price	(million $)	%	Value	Weight			Factor	Factor	
5	5														0.6
6	6	1	ABC12	041081WW	3.270	$104.37	$3.413	56.03%	$0.376	18.68%		Fund ABC12	1.507	11.02%	0.6
7	7	2	ABC12	041081YH	0.990	$107.78	$1.067	17.52%	$0.118	5.84%		Fund DEF34	5.179	37.88%	0.6
8	8	3	ABC12	04108KAR	3.000	$38.30	$1.149	18.86%	$0.127	6.29%		Fund GHI56	6.985	51.09%	
9	9	4	ABC12	914084DN	0.500	$92.40	$0.462	7.58%	$0.051	2.53%					
10	10											Total	13.670	100.00%	
11	11						$6.091	100.00%	$0.671	33.33%					
12	12														
13	13	1	DEF34	041039KJ	0.130	$103.65	$0.135	7.60%	$0.051	2.53%					
14	14	2	DEF34	041039PH	0.300	$100.29	$0.301	16.98%	$0.114	5.66%					
15	15	3	DEF34	927676GA	1.400	$95.45	$1.336	75.42%	$0.506	25.14%					
16	16														
17	17						$1.772	100.00%	$0.671	33.33%					
18	18														
19	19	1	GHI56	041039KJ	0.350	$103.65	$0.363	27.61%	$0.185	9.20%					
20	20	2	GHI56	041081C6	0.485	$102.59	$0.498	37.87%	$0.254	12.62%					
21	21	3	GHI56	914084EJ	0.500	$90.70	$0.453	34.52%	$0.232	11.51%					
22	22														
23	23						$1.314	100.00%	$0.671	33.33%					
24	24			10			$9.177			100.00%					

Fig. 2a

Microsoft Excel - Equal weighting example-formulas

File Edit View Insert Format Tools Data Accounting Window Help

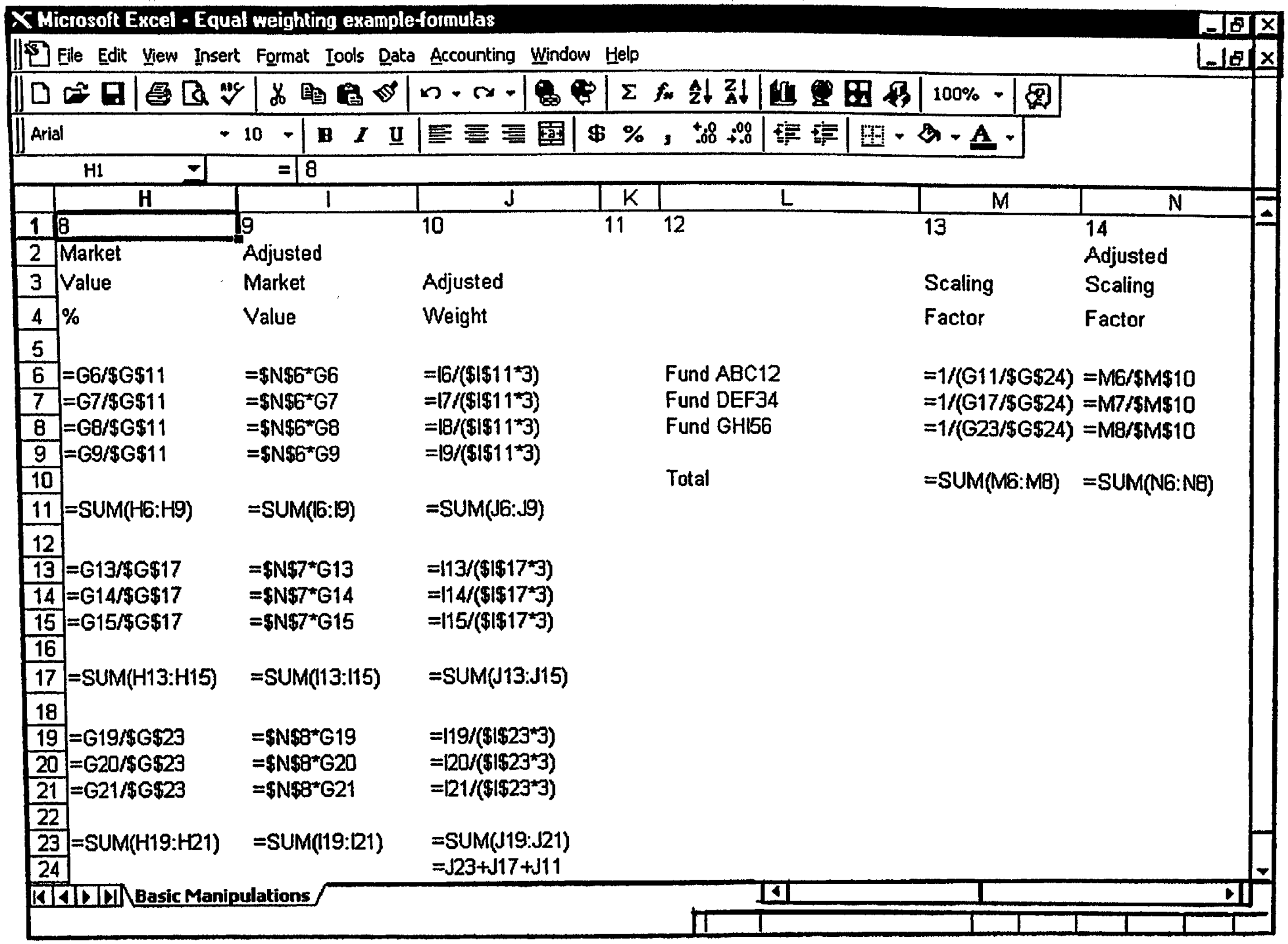
Arial 10 100%

A1 = 1

	A	B	C	D	E	F	G	
1	1	2	3	4	5	6	7	8
2	2						Market	Market
3	3			Security/	Par	Bond $	Value	Value
4	4		Fund	CUSIP	(million $)	Price	(million $)	%
5	5							
6	6	1	ABC12	041081WW	3.27	104.374	=(F6/100)*E6	=G6/G
7	7	2	ABC12	041081YH	0.99	107.775	=(F7/100)*E7	=G7/G
8	8	3	ABC12	04108KAR	3	38.302	=(F8/100)*E8	=G8/G
9	9	4	ABC12	914084DN	0.5	92.398	=(F9/100)*E9	=G9/G
10	10							
11	11						=SUM(G6:G9)	=SUM(H
12	12							
13	13	1	DEF34	041039KJ	0.13	103.65	=(F13/100)*E13	=G13/$G
14	14	2	DEF34	041039PH	0.3	100.285	=(F14/100)*E14	=G14/$G
15	15	3	DEF34	927676GA	1.4	95.451	=(F15/100)*E15	=G15/$G
16	16							
17	17						=SUM(G13:G15)	=SUM(H
18	18							
19	19	1	GHI56	041039KJ	0.35	103.65	=(F19/100)*E19	=G19/$G
20	20	2	GHI56	041081C6	0.485	102.59	=(F20/100)*E20	=G20/$G
21	21	3	GHI56	914084EJ	0.5	90.695	=(F21/100)*E21	=G21/$G
22	22							
23	23						=SUM(G19:G21)	=SUM(H
24	24			=COUNT(B6:B21)			=G23+G17+G11	

Basic Manipulations

Fig. 2b



Microsoft Excel - Equal weighting example-formulas

	H	I	J	K	L	M	N
1	8	9	10	11	12	13	14
2	Market	Adjusted					Adjusted
3	Value	Market	Adjusted			Scaling	Scaling
4	%	Value	Weight			Factor	Factor
5							
6	=G6/$G$11	=$N$6*G6	=I6/($I$11*3)		Fund ABC12	=1/(G11/$G$24)	=M6/$M$10
7	=G7/$G$11	=$N$6*G7	=I7/($I$11*3)		Fund DEF34	=1/(G17/$G$24)	=M7/$M$10
8	=G8/$G$11	=$N$6*G8	=I8/($I$11*3)		Fund GHI56	=1/(G23/$G$24)	=M8/$M$10
9	=G9/$G$11	=$N$6*G9	=I9/($I$11*3)				
10					Total	=SUM(M6:M8)	=SUM(N6:N8)
11	=SUM(H6:H9)	=SUM(I6:I9)	=SUM(J6:J9)				
12							
13	=G13/$G$17	=$N$7*G13	=I13/($I$17*3)				
14	=G14/$G$17	=$N$7*G14	=I14/($I$17*3)				
15	=G15/$G$17	=$N$7*G15	=I15/($I$17*3)				
16							
17	=SUM(H13:H15)	=SUM(I13:I15)	=SUM(J13:J15)				
18							
19	=G19/$G$23	=$N$8*G19	=I19/($I$23*3)				
20	=G20/$G$23	=$N$8*G20	=I20/($I$23*3)				
21	=G21/$G$23	=$N$8*G21	=I21/($I$23*3)				
22							
23	=SUM(H19:H21)	=SUM(I19:I21)	=SUM(J19:J21)				
24			=J23+J17+J11				

Basic Manipulations

Fig. 2c

	Fund Name	NASDAQ Symbol	Latest Fiscal Date	Latest Total Expense Ratio
1	AAL Funds:HI Yld Bd;A	AAHYX	04/30/1999	1.000
2	Aetna:High Yield;A	AEHYX	10/31/1998	1.200
3	AFBA Five Star High Yld		03/31/1998	1.080
4	AIM Inv:High Yld II;A	AHAYX		N/A
5	AIM:High Yield;A	AMHYX	12/31/1998	0.856
6	Alliance High Yield;A	AHYAX	08/31/1998	1.430
7	Am Exp Strat:High Yield		05/31/1998	0.750
8	Amer Cent:AC HY;Inv	ABHIX	10/31/1998	0.900
9	Amer Genl 2:HY Bd;A			N/A
10	American High-Income Tr	AHITX	09/30/1998	0.810
11	ASAF:Fed HI Yld Bd;A	FHYAX	10/31/1998	1.500
12	Battery Park:HI Yld;A	BPHAX	09/30/1998	1.250
13	Bear Stms:HY Tot Rt;A	BSHAX	03/31/1999	1.000
14	Blackrock:HI Yld Bd;Br	BHYIX		N/A
15	Brinson High Yield;I	BIHYX	12/31/1998	0.890
16	Buffalo High Yield	BUFHX	03/31/1999	1.050
17	CG Cap Mkts:HI Yld Inv	THYUX		N/A
18	Columbia High Yield	CMHYX	12/31/1998	0.950
19	Conseco Fund Gr:HY;A	CHYAX	12/31/1998	1.400
20	Delaware Delchester;A	DETWX	07/31/1998	1.060
21	Delaware HI Yld Opp;A	DHOAX	07/31/1998	1.140
22	Delaware Pld:HI Yld Bond	DPHYX	10/31/1998	0.590
23	Dreyfus High Yld	DHIYX	10/31/1998	1.060
24	Dreyfus Prem HY;A			N/A
25	Dreyfus Prem Ltd HI;A	DPLTX	12/31/1998	0.950
26	Dreyfus Sh-Tm HI Yld	DSHYX	10/31/1998	1.180
27	Dvsfd Inv:HY Bond;Dvsfd		12/31/1998	1.000
28	Eaton Vance HI Inc;B	EVHIX	03/31/1999	1.750
29	Eaton Vance Inc Of Bostn	EVIBX	09/30/1998	1.040
30	Enterprise:HI Yld Bd;A	ENHYX	12/31/1998	1.300
31	Equitrust Srs:HI Yld;A	FBYBX	07/31/1998	1.970
32	Evergreen High Yld;A	EKHAX		N/A
33	Executive Inv:High Yield	EIHYX	12/31/1998	1.250
34	Federated HI Inc Bd;A	FHIIX	03/31/1998	1.210
35	Federated High Yield Tr	FHYTX	02/28/1999	0.880
36	Fidelity Adv HI Yld;A	FAHDX	10/31/1998	1.010
37	Fidelity Capital & Inc	FAGIX	04/30/1998	0.830
38	Fidelity High Income	SPHIX	04/30/1998	0.800
39	Fidelity Re/HI Inc		11/30/1998	0.890
40	First Inv Fd For Inc;A	FIFIX	09/30/1998	1.273
41	First Inv High Yield;A	FIHYX	09/30/1998	1.360
42	Florida St Bond	FLSBX	10/31/1998	0.750
43	Fortis Advtg:HI Yld;A	FOHYX	07/31/1998	1.170
44	Franklin Age HI Inc;A	AGEFX	05/31/1998	0.700
45	GE Funds:High Yield;A	GHYDX		N/A
46	Goldman:High Yield;A	GSHAX	10/31/1998	1.090

Fig. 3a

Fund Name	NASDAQ Symbol	Latest Fiscal Date	Latest Total Expense Ratio
47 Guardian High Yld Bd;A	GUHYX		N/A
48 Hartfd:High Yield;A	HAHAX		N/A
49 Heritage Inc:HI Yld;A	HRIDX	09/30/1998	1.190
50 IDEX:Aegon Inc Plus;A	IHIYX	10/31/1998	1.240
51 IDS Extra Income;A	INEAX	05/31/1998	0.890
52 Ing Funds:HI Yld Bd;A	IHYAX		N/A
53 INVESCO Bd:High Yield	FHYPX	08/31/1998	0.860
54 J Hancock High Yield;A	JHHBX	05/31/1998	0.970
55 Janus High Yield	JAHYX	10/31/1998	0.990
56 Kemper High Yield II;A	KHIAX		N/A
57 Kemper High Yield;A	KHYAX	09/30/1998	0.890
58 Kemper HY Opp;A	KYOAX	09/30/1998	1.270
59 Lazard:High Yield;Inst	LZHYX	12/31/1998	1.050
60 Legg Mason Inc:HY;NAV	LMHYX	12/31/1998	0.790
61 Liberty:Col HY Sec;A	COLHX	12/31/1998	1.210
62 Lipper:HI Inc Bond;Grp	LHIGX	12/31/1998	1.250
63 Loomis Sayles:High Yld		09/30/1998	0.750
64 Loomis Sayles:HY Fxd Inc	LSHIX	09/30/1998	0.750
65 Lord Abbett Bond-Deb;A	LBNDX	12/31/1998	0.870
66 Lord Abbett Inv:HY;A	LHYAX		N/A
67 Lutheran Bro:HI Yld;A	LBHYX	10/31/1998	0.840
68 Mainstay:HI Yld Corp;A	MHCAX	12/31/1998	1.000
69 MAS Fds:High Yield;Adv	MAHYX	09/30/1998	0.750
70 Mason Str:HI Yld Bd;A	MHYAX	03/31/1999	1.300
71 Members:High Income;A		10/31/1998	1.000
72 Mentor:High Income;A	MHIAX		N/A
73 Merrill Corp:HI Inc;A	MAHIX	09/30/1998	0.490
74 Merrill Corporate HY;A	MACHX		N/A
75 MFS High Income;A	MHITX	01/31/1999	0.990
76 MFS High Yld Oppty;A		01/31/1999	1.000
77 MFS Instl:High Yield			N/A
78 Morg Gren:High Yld;Inst	MGHYX	10/31/1998	0.650
79 Morg Stn DW In:HI Yld;A	MSHYX	12/31/1998	0.670
80 MSDW High Yld;A	HYLAX	08/31/1998	0.750
81 Neuberger High Yield Bd	NBHAX	10/31/1998	1.000
82 New England High Inc;A	NEFHX	12/31/1998	1.322
83 Nich-App:HI Yld;I	NAHYX	03/31/1998	0.760
84 Northern Fds:HY Fxd Inc	NHFIX		N/A
85 Northstar:HI Yld Bd;A	NHYAX	12/31/1998	1.260
86 Northstar:Tot Ret II;A	NTRAX	10/31/1998	1.440
87 Northstar:Total Ret;A	NNHBX	10/31/1998	1.300
88 Offitbank:High Yield;Sel	OFHYX	12/31/1998	0.840
89 One Group:High Yield;A	OHYAX		N/A
90 Oppenheimer Chpn Inc;A	OPCHX	09/30/1998	1.060
91 Oppenheimer HI Yld;A	OPPHX	06/30/1998	1.000
92 Painewbr High Income;A	PHIAX	11/30/1998	0.910

Fig. 3b

	Fund Name	NASDAQ Symbol	Latest Fiscal Date	Latest Total Expense Ratio
93	Payden&Rygel:HI Inc;R	PYHRX	10/31/1998	0.540
94	Penn Capital HY;Inst	PCSHX	09/30/1998	0.680
95	Phoenix-Gdwn HI Yld;A	PHCHX	10/31/1998	1.120
96	Pilgrim Inv:HI Yld;A	PIHYX	06/30/1998	1.000
97	Pillar:High Yield Bd;A			N/A
98	PIMCO:High Yield;A	PHDAX	03/31/1998	0.900
99	Principal High Yield;A	PHYLX	10/31/1998	1.400
100	Prudential HI Yld;A	PBHAX	12/31/1998	0.670
101	Prudential HY Tot Rt;A	PYRAX	03/31/1999	1.060
102	Putnam HI Yld Advtg;A	PHYIX	11/30/1998	0.920
103	Putnam HI Yld II;A	PUHAX	08/31/1998	1.080
104	Putnam HI Yld T Ret;A		06/30/1998	1.500
105	Putnam High Yield;A	PHIGX	08/31/1998	0.950
106	SAFECO Tr:HY Bd;Adv A	SAHAX	12/31/1998	1.120
107	Salomon Bros:HI Yld;2	SHYCX	12/31/1998	1.990
108	Salomon Inst:HI Yld Bond	SIHYX	02/28/1999	0.550
109	Scudder HI Yld Bond	SHBDX	01/31/1999	0.440
110	Security Inc:HI Yld;A		12/31/1998	0.760
111	SEI Instl:High Yield;A	SHYAX	09/30/1998	0.850
112	Seligman HI:HY Bond;A	SHYBX	12/31/1998	1.100
113	Sentinel:HI Yld Bd;A	SEHYX	11/30/1998	1.280
114	Sm Barney High Inc;A	SHIAX	07/31/1998	1.050
115	Sm Breeden:High Yld Bd		03/31/1999	0.980
116	SS Research:HI Inc;A	SSHAX	03/31/1998	1.100
117	SSGA:High Yield Bond	SSHYX		N/A
118	Stein Roe HI Yield	SRHYX	08/30/1998	1.000
119	Strong High Yield Bond	STHYX	10/31/1998	0.800
120	Strong Sh-Tm HI Yld Bd	STHBX	10/31/1998	0.900
121	Summit:High Yield;A	SUMHX	05/31/1998	1.600
122	Sunamerica:High Inc;A	SHNAX	03/31/1999	1.510
123	T Rowe Price High Yld	PRHYX	05/31/1998	0.810
124	TCW Galileo:HI Yld Bond	TGHYX	10/31/1998	0.850
125	Third Avenue:High Yld	TAHYX	10/31/1998	1.900
126	Touchstone Inc Oppty A	TIOAX	12/31/1997	1.200
127	Transam Prem:HI Yld;Inst	THYIX	12/31/1998	0.650
128	UBS Inv High Yield			N/A
129	United High Income;A	UNHIX	03/31/1998	0.840
130	United High Incomeii;A	UNHHX	09/30/1998	0.960
131	Value Line Aggr Income	VAGIX	01/31/1999	0.810
132	Van Kampen HI Inc Bd;A	ACHYX	08/31/1998	1.000
133	Van Kampen HI Yld Tr;A	MSHAX	06/30/1998	1.250
134	Van Kampen HI Yld;A	VKHYX	06/30/1998	1.140
135	Vanguard HI Yld Corp	VWEHX	01/31/1999	0.290
136	Waddell&Reed:HI Inc;B	WRIBX	03/31/1999	2.200
137	Warb Pincus HI Yld;Cm	WHYCX	08/31/1998	0.950
138	WM:HI Yld;A		10/31/1998	0.780

Fig. 3c

	Fund Name	NASDAQ Symbol	Latest Total Expense Ratio	Mstar Rating	Category Rating	Total Months Rated
1	AAL High Yield Bond A	AAHYX	1	-	-	
2	Aetna High Yield I	AEHYX	0.95	-	-	
3	AIM High-Yield A	AMHYX	0.85	3	2	164
4	Alliance High Yield A	AHYAX	1.43	-	-	
5	American Cent HighYld Inv	ABHIX	0.9	-	-	
6	American Gen HY Bond A	-	-	-	-	
7	American High-Income	AHITX	0.81	4	4	102
8	ASAF Federated High Yld Bd A	FHYAX	1.5	-	-	
9	Battery Park High-Yield A	BPHAX	1.25	-	-	
10	Bear Stearns High Yld Tot A	BSHAX	1	-	-	
11	BlackRock High Yield Bd Inst	BHYIX	-	-	-	
12	Brinson High Yield I	BIHYX	-	-	-	
13	Buffalo High-Yield	BUFHX	1.03	2	3	15
14	Columbia High-Yield	CMHYX	0.95	5	5	35
15	Conseco High Yield A	CHYAX	1.4	-	-	
16	Consulting Group High Yld Iv	THYUX	1.2	-	-	
17	Delaware Delchester A	DETWX	1.06	2	2	164
18	Delaware High-Yield Opport A	DHOAX	1.14	-	-	
19	Delaware Pooled High-Yield	DPHYX	0.59	-	-	
20	Dreyfus High-Yield Secs	DHIYX	1.06	1	1	5
21	Dreyfus Premier Ltd-Tm HiInA	DPLTX	0.95	-	-	
22	Dreyfus Short-Term High-Yld	DSHYX	1.06	-	-	
23	Eaton Vance High-Income B	EVHIX	1.73	5	5	120
24	Eaton Vance Inc of Boston A	EVIBX	1.04	5	5	164
25	Enterprise High-Yield Bond A	ENHYX	1.3	3	4	105
26	EquiTrust High-Yield Bond	FBYBX	2	5	4	105
27	Evergreen High-Yield Bond A	EKHAX	-	-	-	
28	Executive Investors Hi-Yield	EIHYX	1.22	3	3	113
29	Federated High-Income Bond A	FHIIX	1.19	5	4	164
30	Federated High-Yield	FHYTX	0.88	4	4	144
31	Fidelity Adv Hi-Yield A	FAHDX	1	-	-	
32	Fidelity Capital & Income	FAGIX	0.81	5	5	164
33	Fidelity High-Income	SPHIX	0.8	5	5	72
34	First Invest Fund for Inc A	FIFIX	1.27	4	4	164
35	First Invest High-Yield A	FIHYX	1.36	3	4	119
36	Florida Street Bond	FLSBX	0.75	-	-	
37	Fortis Advant High-Yield A	FOHYX	1.17	1	2	104
38	Franklin AGE High Inc A	AGEFX	0.7	4	3	164
39	Goldman Sachs High Yld A	GSHAX	1.09	-	-	
40	Hancock High-Yield Bond A	JHHBX	0.97	2	1	38
41	Hartford High Yield A	HAHAX	-	-	-	
42	Heritage High-Yield Bond A	HRIDX	1.19	3	3	78
43	Idex AEGON Income Plus A	IHIYX	1.24	4	4	134
44	ING High Yield Bond A	IHYAX	-	-	-	
45	Invesco High-Yield	FHYPX	0.86	4	4	150
46	Janus High-Yield	JAHYX	0.96	4	4	8

Fig. 4a

	Fund Name	NASDAQ Symbol	Latest Total Expense Ratio	Mstar Rating	Category Rating	Total Months Rated
47	Kemper High Yield Opport A	KYOAX	1.27	-	-	
48	Kemper High-Yield A	KHYAX	0.89	4	3	164
49	Lazard High Yield Instl	LZHYX	1.05	-	-	
50	Legg Mason High-Yield Prim	LMHYX	1.3	5	4	31
51	Liberty-Colonial H/Y Secs A	COLHX	1.21	5	4	164
52	Lipper High Income Bd Group	LHIGX	1.25	5	4	4
53	Loomis Sayles High Yld F/I	LSHIX	0.75	1	1	2
54	Loomis Sayles High Yld Instl	-	0.75	-	-	
55	Lord Abbett Bond-Debenture A	LBNDX	0.88	4	4	164
56	Lord Abbett High Yield A	LHYAX	-	-	-	
57	Lutheran Brotherhood Hi-Yd A	LBHYX	0.84	3	3	112
58	MainStay Hi-Yield Corp Bd A	MHCAX	1	4	5	20
59	MAS High-Yield Adv	MAHYX	0.73	-	-	
60	Mason Street High Yield Bd A	MHYAX	1.3	-	-	
61	Members High Income A	-	1	-	-	
62	Mentor High Income A	MHIAX	-	-	-	
63	Merrill Lynch Corp Hi-Inc A	MAHIX	0.49	4	2	164
64	Merrill Lynch Corp HiYld A	MACHX	-	-	-	
65	MFS High Yield Opport A	-	1	-	-	
66	MFS High-Income A	MHITX	0.99	3	4	164
67	Morgan Grenfell High Yld Bd	MGHYX	0.65	-	-	
68	MSDW High-Yield Secs A	HYLAX	0.75	-	-	
69	MSDW Instl High-Yield A	MSHYX	0.69	5	4	47
70	Neuberger Berman HiYld	NBHAX	1	-	-	
71	New England High-Income A	NEFHX	1.32	2	3	149
72	Nicholas-Apple Hi-Yld I	NAHYX	0.76	5	5	1
73	Northern High Yield Fl	NHFIX	0.9	-	-	
74	Northstar High Total Ret A	NNHBX	1.3	1	1	33
75	Northstar High Total Ret IIA	NTRAX	1.44	-	-	
76	Northstar High-Yield A	NHYAX	1.26	3	4	14
77	Offitbank High Yield Sel	OFHYX	0.84	5	4	30
78	One Group High Yield Bd A	OHYAX	-	-	-	
79	Oppenheimer Champion Inc A	OPCHX	1.06	4	4	105
80	Oppenheimer High-Yield A	OPPHX	1	4	3	164
81	PaineWebber High-Income A	PHIAX	0.98	2	2	144
82	Payden & Rygel High Income R	PYHRX	0.54	-	-	
83	Penn Capital Str Hi-Yld	PCSHX	0.68	-	-	
84	Phoenix-Goodwin High-Yield A	PHCHX	1.12	2	2	164
85	Pilgrim High Yield A	PIHYX	1	3	3	137
86	Pillar High-Yield Bond A	-	-	-	-	
87	PIMCO High-Yield A	PHDAX	0.9	-	-	
88	Principal High-Yield A	PHYLX	1.4	2	3	104
89	Prudential High-Yield A	PBHAX	0.67	3	3	79
90	Prudential Hi-Yld Tot Ret A	PYRAX	1.06	-	-	
91	Putnam High Yield A	PHIGX	0.95	2	2	164
92	Putnam High Yield Adv A	PHYIX	0.92	2	1	125

Fig. 4b

	Fund Name	NASDAQ Symbol	Latest Total Expense Ratio	Mstar Rating	Category Rating	Total Months Rated
93	Putnam High Yield II A	PUHAX	-	-	-	
94	Safeco High-Yield Adv A	SAHAX	1.12	-	-	
95	Salomon Bros High-Yield Bd 2	SHYCX	1.99	1	1	18
96	Salomon Bros Instl High-Yld	SIHYX	-	3	3	3
97	Scudder High-Yield Bond	SHBDX	0.44	5	4	2
98	Security Income High Yield A	-	0.76	-	-	
99	SEI Instl High-Yield Bond A	SHYAX	0.85	5	4	19
100	Seligman High-Yield Bond A	SHYBX	1.1	4	3	137
101	Sentinel High Yield Bond A	SEHYX	1.26	-	-	
102	Smith Barney High-Income A	SHIAX	1.05	3	3	45
103	Smith Breeden High Yield Bd	-	0.98	-	-	
104	SSgA High Yield Bond	SSHYX	0.65	-	-	
105	State St Research High-Inc A	SSHAX	1.06	3	3	119
106	Stein Roe High Yield	SRHYX	1	-	-	
107	Strong High-Yield Bond	STHYX	0.8	5	5	8
108	Strong Short-Term Hi-Yld Bd	STHBX	0.9	-	-	
109	Summit High-Yield Ret	SUMHX	1.6	3	2	25
110	SunAmerica High-Income A	SHNAX	1.52	2	2	119
111	T. Rowe Price High-Yield	PRHYX	0.81	4	5	140
112	TCW Galileo High-Yield Bd I	TGHYX	0.85	5	4	42
113	Third Avenue High-Yield	TAHYX	1.9	-	-	
114	Touchstone Income Opport A	TIOAX	1.2	1	1	23
115	Transamerica Prem HiYld Ins	THYIX	-	-	-	
116	United High-Income A	UNHIX	0.94	3	4	164
117	United High-Income II A	UNHHX	0.96	3	4	122
118	Value Line Aggressive Income	VAGIX	0.81	4	3	126
119	Van Kampen High-Income CorpA	ACHYX	1	2	3	164
120	Van Kampen High-Yield A	VKHYX	1.17	2	3	120
121	Van Kampen Hi-Yld & TotRet A	MSHAX	1.25	3	4	4
122	Vanguard High-Yield Corp	VWEHX	0.29	5	4	164
123	Waddell & Reed High Income B	WRIBX	2.2	-	-	
124	Warburg Pincus High-Yld Comm	WHYCX	0.96	-	-	
125	WM High Yield A	-	0.78	-	-	

Fig. 4c

	Fund Name	NASDAQ Symbol	Latest Total Expense Ratio	Mstar Rating	Category Rating	Total Months Rated
1	Columbia High-Yield	CMHYX	0.95	5	5	35
2	Liberty-Colonial H/Y Secs A	COLHX	1.21	5	4	164
3	Eaton Vance High-Income B	EVHIX	1.73	5	5	120
4	Eaton Vance Inc of Boston A	EVIBX	1.04	5	5	164
5	Fidelity Capital & Income	FAGIX	0.81	5	5	164
6	EquiTrust High-Yield Bond	FBYBX	2	5	4	105
7	Federated High-Income Bond A	FHIIX	1.19	5	4	164
8	Lipper High Income Bd Group	LHIGX	1.25	5	4	4
9	Legg Mason High-Yield Prim	LMHYX	1.3	5	4	31
10	MSDW Instl High-Yield A	MSHYX	0.69	5	4	47
11	Nicholas-Apple Hi-Yld I	NAHYX	0.76	5	5	1
12	Offitbank High Yield Sel	OFHYX	0.84	5	4	30
13	Scudder High-Yield Bond	SHBDX	0.44	5	4	2
14	SEI Instl High-Yield Bond A	SHYAX	0.85	5	4	19
15	Fidelity High-Income	SPHIX	0.8	5	5	72
16	Strong High-Yield Bond	STHYX	0.8	5	5	8
17	TCW Galileo High-Yield Bd I	TGHYX	0.85	5	4	42
18	Vanguard High-Yield Corp	VWEHX	0.29	5	4	164

Fig. 5

	1	2	3	4	5	6	7	8
Fund	Security/ CUSIP	Par (million $)	Bond $ Price	Market Value (million $)	Market Value %	Adjusted Market Value	Adjusted Weight
1 ABC12	041081WW	3.270	$104.37	$3.413	7.15%	$0.486	2.38%
2 ABC12	041081YH	0.990	$107.78	$1.067	2.24%	$0.152	0.75%
3 ABC12	041086DZ	1.250	$99.41	$1.243	2.60%	$0.177	0.87%
4 ABC12	04108KAR	3.000	$38.30	$1.149	2.41%	$0.164	0.80%
5 ABC12	04108NDL	0.750	$100.80	$0.756	1.58%	$0.108	0.53%
6 ABC12	041150CL	0.610	$110.00	$0.671	1.41%	$0.096	0.47%
7 ABC12	041150CN	1.000	$101.58	$1.016	2.13%	$0.145	0.71%
8 ABC12	071810AL	2.350	$100.86	$2.370	4.97%	$0.337	1.66%
9 ABC12	096530AA	2.500	$105.29	$2.632	5.51%	$0.375	1.84%
10 ABC12	414857AA	0.500	$118.47	$0.592	1.24%	$0.084	0.41%
11 ABC12	472712DN	0.550	$101.88	$0.560	1.17%	$0.080	0.39%
12 ABC12	480261DZ	2.610	$101.74	$2.655	5.56%	$0.378	1.85%
13 ABC12	537346AA	1.000	$90.81	$0.908	1.90%	$0.129	0.63%
14 ABC12	537372BR	1.125	$109.74	$1.235	2.59%	$0.176	0.86%
15 ABC12	537373BX	0.550	$97.00	$0.534	1.12%	$0.076	0.37%
16 ABC12	537374BX	2.000	$117.69	$2.354	4.93%	$0.335	1.64%
17 ABC12	53737EAQ	1.000	$105.44	$1.054	2.21%	$0.150	0.74%
18 ABC12	66732PAB	0.750	$110.59	$0.829	1.74%	$0.118	0.58%
19 ABC12	699129BY	1.500	$100.99	$1.515	3.17%	$0.216	1.06%
20 ABC12	722461AB	0.775	$95.60	$0.741	1.55%	$0.105	0.52%
21 ABC12	732835AW	0.500	$101.58	$0.508	1.06%	$0.072	0.35%
22 ABC12	745268QB	0.450	$108.25	$0.487	1.02%	$0.069	0.34%
23 ABC12	745392DQ	2.250	$100.14	$2.253	4.72%	$0.321	1.57%
24 ABC12	79506RBC	0.500	$101.10	$0.506	1.06%	$0.072	0.35%
25 ABC12	79506RBQ	0.400	$103.07	$0.412	0.86%	$0.059	0.29%
26 ABC12	840181AS	1.500	$100.33	$1.505	3.15%	$0.214	1.05%
27 ABC12	881766DP	0.500	$98.92	$0.495	1.04%	$0.070	0.35%
28 ABC12	914115GQ	0.500	$103.53	$0.518	1.08%	$0.074	0.36%
29 ABC12	041085BW	1.000	$90.66	$0.907	1.90%	$0.129	0.63%
30 ABC12	04108LAA	0.500	$94.07	$0.470	0.99%	$0.067	0.33%
31 ABC12	745268JW	1.000	$36.53	$0.365	0.77%	$0.052	0.26%
32 ABC12	041039LF	2.750	$44.23	$1.216	2.55%	$0.173	0.85%
33 ABC12	041039P8	0.500	$36.51	$0.183	0.38%	$0.026	0.13%
34 ABC12	041081UD	1.100	$97.64	$1.074	2.25%	$0.153	0.75%
35 ABC12	041086FK	0.500	$95.07	$0.475	1.00%	$0.068	0.33%
36 ABC12	04108KFN	1.000	$91.62	$0.916	1.92%	$0.130	0.64%
37 ABC12	041186JL	0.625	$91.60	$0.572	1.20%	$0.082	0.40%
38 ABC12	041186KD	1.000	$93.36	$0.934	1.96%	$0.133	0.65%
39 ABC12	071808FZ	1.500	$90.08	$1.351	2.83%	$0.192	0.94%
40 ABC12	537445EW	1.250	$100.00	$1.250	2.62%	$0.178	0.87%
41 ABC12	660546DV	0.250	$111.44	$0.279	0.58%	$0.040	0.19%
42 ABC12	660546DX	2.390	$111.48	$2.664	5.58%	$0.379	1.86%
43 ABC12	745145AU	0.500	$38.90	$0.195	0.41%	$0.028	0.14%
44 ABC12	745145AW	0.500	$34.39	$0.172	0.36%	$0.024	0.12%
45 ABC12	745268E1	0.300	$89.49	$0.268	0.56%	$0.038	0.19%
46 ABC12	914084DN	0.500	$92.40	$0.462	0.97%	$0.066	0.32%
				$47.731	100.00%	$6.796	33.33%

Fig. 6a

	1	2	3	4	5	6	7	8
	Fund	Security/ CUSIP	Par (million $)	Bond $ Price	Market Value (million $)	Market Value %	Adjusted Market Value	Adjusted Weight
1	DEF34	041039KJ	0.130	$103.65	$0.135	0.46%	$0.031	0.15%
2	DEF34	041039PH	0.300	$100.29	$0.301	1.02%	$0.069	0.34%
3	DEF34	041039XJ	0.560	$99.85	$0.559	1.89%	$0.129	0.63%
4	DEF34	041081G5	1.000	$101.41	$1.014	3.43%	$0.233	1.14%
5	DEF34	041081WH	0.110	$104.73	$0.115	0.39%	$0.027	0.13%
6	DEF34	041085AT	1.000	$101.99	$1.020	3.45%	$0.235	1.15%
7	DEF34	04108HAS	0.950	$97.85	$0.930	3.15%	$0.214	1.05%
8	DEF34	041150CN	0.500	$101.58	$0.508	1.72%	$0.117	0.57%
9	DEF34	041150CS	0.325	$98.22	$0.319	1.08%	$0.073	0.36%
10	DEF34	096530AB	0.100	$102.36	$0.102	0.35%	$0.024	0.12%
11	DEF34	132702AA	0.250	$110.39	$0.276	0.93%	$0.063	0.31%
12	DEF34	348815DX	0.130	$104.63	$0.136	0.46%	$0.031	0.15%
13	DEF34	350393CC	0.130	$108.73	$0.141	0.48%	$0.033	0.16%
14	DEF34	395308DV	0.115	$101.52	$0.117	0.40%	$0.027	0.13%
15	DEF34	400648BK	0.125	$106.66	$0.133	0.45%	$0.031	0.15%
16	DEF34	400653BG	0.200	$91.34	$0.183	0.62%	$0.042	0.21%
17	DEF34	403272AX	2.160	$92.13	$1.990	6.74%	$0.458	2.25%
18	DEF34	472712DN	0.400	$101.88	$0.408	1.38%	$0.094	0.46%
19	DEF34	480256AW	0.200	$98.32	$0.197	0.67%	$0.045	0.22%
20	DEF34	480256BP	0.100	$100.28	$0.100	0.34%	$0.023	0.11%
21	DEF34	480261DZ	0.450	$101.74	$0.458	1.55%	$0.105	0.52%
22	DEF34	537360HY	0.140	$100.98	$0.141	0.48%	$0.033	0.16%
23	DEF34	537394EZ	0.130	$103.53	$0.135	0.46%	$0.031	0.15%
24	DEF34	537428QH	0.120	$100.54	$0.121	0.41%	$0.028	0.14%
25	DEF34	537428SZ	0.100	$100.07	$0.100	0.34%	$0.023	0.11%
26	DEF34	537457BG	0.440	$100.04	$0.440	1.49%	$0.101	0.50%
27	DEF34	660551AR	0.800	$96.87	$0.775	2.62%	$0.178	0.87%
28	DEF34	699129BY	0.400	$100.99	$0.404	1.37%	$0.093	0.46%
29	DEF34	732835BA	0.500	$102.33	$0.512	1.73%	$0.118	0.58%
30	DEF34	7451446T	0.250	$101.34	$0.253	0.86%	$0.058	0.29%
31	DEF34	745144M9	0.250	$110.39	$0.276	0.93%	$0.063	0.31%
32	DEF34	745181NA	0.350	$96.59	$0.338	1.14%	$0.078	0.38%
33	DEF34	745194QY	0.165	$101.84	$0.168	0.57%	$0.039	0.19%
34	DEF34	745268ND	0.175	$106.88	$0.187	0.63%	$0.043	0.21%
35	DEF34	745268TV	0.600	$96.65	$0.580	1.96%	$0.133	0.65%
36	DEF34	74527BGJ	0.250	$96.78	$0.242	0.82%	$0.056	0.27%
37	DEF34	74539QBS	0.125	$107.86	$0.135	0.46%	$0.031	0.15%
38	DEF34	74539XGC	0.600	$104.45	$0.627	2.12%	$0.144	0.71%
39	DEF34	794900DD	0.700	$100.69	$0.705	2.39%	$0.162	0.80%
40	DEF34	79506RBQ	0.195	$103.07	$0.201	0.68%	$0.046	0.23%
41	DEF34	812834DL	0.600	$100.02	$0.600	2.03%	$0.138	0.68%
42	DEF34	881766DP	0.200	$98.92	$0.198	0.67%	$0.046	0.22%
43	DEF34	914084EH	0.300	$94.94	$0.285	0.96%	$0.066	0.32%
44	DEF34	914084FN	0.340	$94.95	$0.323	1.09%	$0.074	0.36%
45	DEF34	914084FP	0.100	$100.00	$0.100	0.34%	$0.023	0.11%
46	DEF34	914115HJ	0.375	$102.17	$0.383	1.30%	$0.088	0.43%
47	DEF34	914811KU	0.285	$95.12	$0.271	0.92%	$0.062	0.31%
48	DEF34	914883BQ	0.125	$101.82	$0.127	0.43%	$0.029	0.14%
49	DEF34	041081M6	0.560	$96.14	$0.538	1.82%	$0.124	0.61%
50	DEF34	04108MBC	0.495	$100.07	$0.495	1.68%	$0.114	0.56%
51	DEF34	04108RBF	0.100	$100.00	$0.100	0.34%	$0.023	0.11%
52	DEF34	212595BS	2.055	$96.69	$1.987	6.73%	$0.457	2.24%
53	DEF34	472712EQ	2.900	$94.51	$2.741	9.28%	$0.631	3.09%
54	DEF34	537346AA	3.000	$90.81	$2.724	9.22%	$0.627	3.07%
55	DEF34	7451443Y	0.250	$95.31	$0.238	0.81%	$0.055	0.27%
56	DEF34	745177AH	0.200	$100.00	$0.200	0.68%	$0.046	0.23%
57	DEF34	74539YCH	1.300	$97.64	$1.269	4.30%	$0.292	1.43%
58	DEF34	745901FZ	0.135	$101.98	$0.138	0.47%	$0.032	0.16%
59	DEF34	927676GA	1.400	$95.45	$1.336	4.52%	$0.307	1.51%
					$29.535	100.00%	$6.796	33.33%

Fig. 6b

	1	2	3	4	5	6	7	8
Fund	Security/ CUSIP	Par (million $)	Bond $ Price	Market Value (million $)	Market Value %	Adjusted Market Value	Adjusted Weight	
1 GHI56	041039KJ	0.350	$103.65	$0.363	3.35%	$0.228	1.12%	
2 GHI56	041081C6	0.485	$102.59	$0.498	4.59%	$0.312	1.53%	
3 GHI56	041081QG	0.635	$104.26	$0.662	6.11%	$0.415	2.04%	
4 GHI56	041085AT	0.500	$101.99	$0.510	4.71%	$0.320	1.57%	
5 GHI56	041150CL	0.350	$110.00	$0.385	3.56%	$0.242	1.19%	
6 GHI56	071810AL	0.275	$100.86	$0.277	2.56%	$0.174	0.85%	
7 GHI56	132702AA	1.000	$110.39	$1.104	10.19%	$0.693	3.40%	
8 GHI56	227605AB	0.200	$100.00	$0.200	1.85%	$0.126	0.62%	
9 GHI56	348815DX	0.350	$104.63	$0.366	3.38%	$0.230	1.13%	
10 GHI56	453424AY	0.250	$100.79	$0.252	2.33%	$0.158	0.78%	
11 GHI56	472712DN	0.200	$101.88	$0.204	1.88%	$0.128	0.63%	
12 GHI56	537360HX	0.500	$100.96	$0.505	4.66%	$0.317	1.55%	
13 GHI56	537394EZ	0.375	$103.53	$0.388	3.59%	$0.244	1.20%	
14 GHI56	660546DX	0.400	$111.48	$0.446	4.12%	$0.280	1.37%	
15 GHI56	732835AW	0.300	$101.58	$0.305	2.81%	$0.191	0.94%	
16 GHI56	745144Y6	0.325	$109.04	$0.354	3.27%	$0.222	1.09%	
17 GHI56	745177AH	0.500	$100.00	$0.500	4.62%	$0.314	1.54%	
18 GHI56	745181HJ	0.320	$88.22	$0.282	2.61%	$0.177	0.87%	
19 GHI56	745235NK	0.500	$91.45	$0.457	4.22%	$0.287	1.41%	
20 GHI56	745268G9	0.500	$86.27	$0.431	3.98%	$0.271	1.33%	
21 GHI56	745392DQ	0.500	$100.14	$0.501	4.62%	$0.314	1.54%	
22 GHI56	74539QCJ	1.000	$87.02	$0.870	8.04%	$0.546	2.68%	
23 GHI56	79506RBQ	0.500	$103.07	$0.515	4.76%	$0.323	1.59%	
24 GHI56	914084EJ	0.500	$90.70	$0.453	4.19%	$0.285	1.40%	
				$10.829	100.00%	$6.796	33.33%	
							100.00%	

Fig. 6c

Fund Name	NASDAQ Symbol	Underlying Portfolio Code	Latest Total Net Assets (Mil. $)	Load Type	Latest Total Expense Ratio
1 Columbia High Yield	CMHYX	1010278	69.7	No Load	0.95
2 Liberty:Col HY Sec;A	COLHX	1000758	573.2	Front-End Load	1.21
3 Eaton Vance HI Inc;B	EVHIX	1001774	710.5	Back-End Load	1.75
4 Eaton Vance Inc Of Bostn	EVIBX	1007062	325.3	Front-End Load	1.04
5 Fidelity Capital & Inc	FAGIX	1006956	2629.4	No Load	0.83
6 Equitrust Srs:HI Yld;A	FBYBX	1009117	13.4	Back-End Load	1.97
7 Federated HI Inc Bd;A	FHIIX	1000624	874.5	Front-End Load	1.21
8 Lipper:HI Inc Bond;Grp	LHIGX	1003186	5.3	Institutional No Load	1.25
9 Legg Mason Inc:HY;Prm	LMHYX	1003363	431.7	Level Load	1.30
10 Morg Stn DW In:HI Yld;A	MSHYX	1002603	137.1	Institutional No Load	0.67
11 Nich-App:HI Yld;I	NAHYX	1005575	11.2	Institutional No Load	0.76
12 Offitbank:High Yield;Sel	OFHYX	1002638	1790.9	Institutional No Load	0.84
13 Scudder HI Yld Bond	SHBDX	1014614	181.2	No Load	0.44
14 SEI Instl:High Yield;A	SHYAX	1011365	477.4	Institutional No Load	0.85
15 Fidelity High Income	SPHIX	1009498	3285.6	No Load	0.80
16 Strong High Yield Bond	STHYX	1013249	613.8	No Load	0.80
17 TCW Galileo:HI Yld Bond	TGHYX	1014205	206.1	Institutional No Load	0.85
18 Vanguard HI Yld Corp	VWEHX	1006999	5809.9	No Load	0.29
			Average		0.99

Fig. 7

Please type a plus sign (+) inside this box → [+]

PTO/SB/01 (12-97)

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☒ Declaration Submitted with Initial Filing **OR** ☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16(e)) required)

Attorney Docket Number	KIHNJ40223
First Named Inventor	Kihn
COMPLETE IF KNOWN	
Application Number	
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Universal Asset Class Benchmarking System, Process and Product

(Title of the Invention)

the specification of which

☒ is attached hereto

OR

☐ was filed on (MM/DD/YYYY) ____ as United States Application Number or PCT International Application Number ____ and was amended on (MM/DD/YYYY) ____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim fthe benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	
		☐ Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

Please type a plus sign (+) inside this box → [+]

PTO/SB/01 (12-97)

DECLARATION - Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 356(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number *(if applicable)*

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: ☒ Customer Number **021587** →

OR

☐ Registered practitioner(s) name/registration number listed below

Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

Direct all correspondence to: ☒ Customer Number or Bar Code Label **021587** *OR* ☐ Correspondence address below

Name					
Address					
Address					
City		**State**		**ZIP**	
Country		**Telephone**		**Fax**	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])	Family Name or Surname
John	Kihn

Inventor's Signature	John Kihn					**Date**	10/24/99
Residence: City	Chestnut Hill	**State**	MA	**Country**	USA	**Citizenship**	USA
Post Office Address	198 Sherman Road						
Post Office Address							
City	Chestnut Hill	**State**	MA	**ZIP**	02467	**Country**	USA

☐ Additional inventors are being named on the _____supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto.

Form generated by Morse & Altman